

NEVADA DIVISION OF ENVIRONMENTAL PROTECTION

FACT SHEET

(pursuant to NAC 445A.236)

Applicant: Southern Nevada Water Authority
P O Box 99956
Las Vegas, NV 89153-9956

Permit Number: NV0023795

Facility Locations: Lower Narrows Weir and Homestead Weir –SNWA 810M01C1
Lower Las Vegas Wash, ~ 5 miles upstream of Lake Mead
Clark County, Nevada Sections 28&29 T21S R63E
weir coordinates at top of weirs at their centerlines, respectively:
Lower Narrows: Latitude: 36° 05' 38.75655" N
Longitude: 114° 57' 34.71602" W
Homestead: Latitude: 36° 05' 42.34661" N
Longitude: 114° 57' 14.43518" W

Discharge Outfalls: coordinates located tentatively at the downstream edges of the weir aprons:

Outfall 001: Lower Narrows: Latitude: 36° 05' 39.22160" N
Longitude: 114° 57' 30.98228" W
Outfall 002: Homestead: Latitude: 36° 05' 42.95856" N
Longitude: 114° 57' 09.52111" W

General: The Southern Nevada Water Authority (SNWA) is proposing to construct two erosion control structures: the Lower Narrows Weir and the Homestead Weir, together with associated bank protection in the Las Vegas Wash (Wash), in Clark County, Nevada. Due to increasing flows resulting from expanding upstream urbanization in the Las Vegas Valley, the Wash has undergone significant erosion resulting in the discharge of large volumes of sediment and intercepted shallow ground water into Lake Mead (Lake). Sediment transport studies completed by SNWA have shown that without the installation of these facilities the Wash channel could erode another 15 to 28 feet deeper with accompanying lateral bank erosion and additional interception of contaminated groundwater. To address the erosion problems a series of weirs is being constructed. This permit covers the construction of two of 22 erosion control structures constructed and/or planned for construction in the 7.5 mile long reach of the Wash from the Clark County Reclamation District wastewater outlet to Lake Las Vegas. The two weirs will be constructed in a portion of the Wash where the channel bed has eroded and become incised to a depth of between 20-40 feet below the original floodplain. The incised channel width ranges from approximately 300-600 feet. The configuration of these two weirs is similar to the design of weirs installed by the SNWA at seven other locations within the Wash. The weirs will be constructed as single stage, confined rock riprap structures. An upstream steel sheet pile seepage control wall located in the top of weir section and a similar wall located in the apron section of each weir will confine the riprap, reducing movement under high flood flows. The rock riprap will be placed on a three stage filter system placed to prevent fine grained foundation soils from eroding away. A separate temporary permit, TNEV2010366, was issued on November 5, 2009 for working in waterways to cover the working in waters activities for a period of 6 months, effective December 1, 2009.

The weir construction projects will require surface water diversion and shallow groundwater dewatering.

A major focus of water management during construction will be the discharge of groundwater containing perchlorate to the Wash, which flows to Lake Mead. Dewatering discharge to the Wash will be permitted to Outfalls 001 and 002 from December 1 through May 31 each winter season, but may be adjusted as needed based on data collected in Lake Mead.

Flow: The application requested a total dewatering discharge flow rate of 7000 gallons per minute (gpm), equivalent to 10.1 million gallons per day (MGD). Actual dewatering flow rates will be determined by the Permittee, based upon the maximum perchlorate loading rate of 80 lbs/day, measured at the end of the discharge pipe outlets at Outfalls 001 and 002 summed. Permit total flow rate will be 7000 gpm.

Site Groundwater: Within the project area the elevation of the groundwater varies with location, but is generally quite shallow, approximately 10-40 feet below ground surface. The local groundwater flow is towards Lake Mead. Within the project area a number of groundwater monitoring wells are sampled by SNWA on a monthly basis. The application identified no public drinking water supply wells within ¼-mile of the site. The weir construction and discharge sites are not within a wellhead protection area.

Receiving Water Characteristics: The receiving water for the pumped groundwater is the Las Vegas Wash which flows into Lake Mead. The Wash is the primary wastewater and stormwater drainage outlet for the Las Vegas Valley and surrounding watershed. The SNWA presently samples the Wash in several locations and will continue to do so throughout the life of this permit. Groundwater will also continue to be sampled in several locations. Lake Mead is presently sampled regularly in several locations and will continue to be sampled during the weir construction projects. The Colorado River, below Hoover Dam will continue to be sampled.

Specific sampling requirements are listed below in Table I, including frequency and location of sampling. Other sampling, monitoring and reporting (including Quarterly Reporting of sampling/monitoring and analytical data) is required at multiple locations including: the Northshore Road sampling location within the Wash; at two designated locations within Lake Mead; and a Colorado River sampling location, immediately below Hoover Dam. Perchlorate mass (at Northshore Road only) and concentration, and other analyte and parameter information will be collected at non-discharge locations and will be submitted to the Division under a separate reporting format than the monthly DMRs submitted in compliance with Table I. Additional requirements include notifying the Division if the Lake elevation drops below 1080 feet above mean sea level (ft AMSL), and limiting the discharge to a maximum total perchlorate mass load of 80 lbs/day, as the sum of all outfalls, as measured at the end of the discharge pipes (Outfalls 001 and 002) prior to entering the Wash.

Proposed Effluent Limitations:

Table I. Effluent Limits and Sampling and Monitoring Requirements

Parameters & Units		Discharge Limitations	Sampling Location	Monitoring Frequency	Monitoring Type
Flow ¹ , Dewatering Discharge Totals ¹	gpm, MGD	7000, 10.1	001, 002	Continuous, report monthly	Flow meter, calculation
pH	S.U.	6.5 - 9.0	001, 002	Daily ⁶	Discrete
Perchlorate ²	lbs/day	80	001, 002	Daily ⁶	Discrete
TPH ³	mg/L	M&R	001, 002	Event	Discrete
TDS ⁴	lbs/day	M&R	001, 002	Quarterly	Discrete
Selenium ⁵	mg/L	M&R	001, 002	Quarterly	Discrete

NOTES:

1. Monitor and report monthly on DMR forms, for individual Outfall 001 and Outfall 002 and the sum of Outfalls 001 and 002.
2. Total perchlorate load calculated from the sum of Outfall 001 and Outfall 002 shall not exceed the total lbs/day load in Table I.A.1., during dewatering.
3. EPA Method 8015B and EPA Method 8260 B, full range, C6-C40. Monitor as background and in the event of a fuel leak/visible sheen.
4. Sample at a minimum of once per quarter, and report quarterly, calculated from the sum of Outfalls 001 and 002.
5. Total recoverable; sample at a minimum of once per quarter, and report quarterly for individual Outfall 001 and Outfall 002.
6. Sample daily and report monthly on DMR forms.

gpm: gallons per minute

M&R: Monitor and Report

lbs/day: pounds per day load

TPH: Total Petroleum Hydrocarbons

MGD: Million gallons per day

S.U.: standard pH units

mg/L: milligrams per liter

TDS: Total Dissolved Solids

Rationale for Permit Requirements: The Division has established the monitoring requirements in Table 1 above to ensure that the receiving water, Las Vegas Wash, and downstream, Lake Mead, and the Colorado River are not degraded appreciably as a result of project activities.

Flow: The rationale for the 30-day average discharge was explained in the Flow section of this fact sheet. Dewatering discharges will be limited to December 1 through May 31 each year, in order to limit the potential for lake stratification-induced perchlorate concentration increases. The project activities are projected to require two years. If perchlorate loading, as calculated from the sum of the discharges from Outfalls 001 and 002, increases above 80 lbs/day, dewatering activities will cease, or be reduced to prevent permit exceedances.

pH: 6.5 - 9.0, standard units. pH is required monitoring per NAC 445A.198 and NAC 445A.199.

Perchlorate: There is no standard to date in the Wash. Perchlorate concentrations in the Wash and in the shallow groundwater are due to sources upstream. Remediation is occurring at several key locations to limit the perchlorate mass flux to the Wash. These remediation efforts were initiated in 1999 and are ongoing. Wash data show a declining amount of perchlorate present in the Wash surface water over time beginning in early 2000, through mid-2007, as measured at Northshore Road. Recent Wash data trends show perchlorate loading to the Wash in the range of 60-90 pounds per day from mid-2007 through current (late 2009), as measured at Northshore Road. This permit will restrict the total increase in the perchlorate load to the Wash to a maximum of 80 pounds per day, measured as the aggregate of the discharge locations (Outfalls 001 and 002). The permit additionally restricts the dewatering discharge to a specified period (December 1 through May 31 each winter season), based on the times that the Lake is destratified/stratified.

Additional sampling at multiple locations (Northshore Road, Lake Mead and below Hoover Dam) and analyses, is intended to monitor the total perchlorate load and assist in regulating the discharge. The perchlorate mass (at Northshore Road only) and concentration data (and other analyte and parameter data) generated from the above referenced locations will be submitted to the Division under a separate reporting format than the monthly Discharge Monitoring Reports (DMRs) submitted in compliance with Table I. The separate reporting format will be structured as a quarterly submittal to the Division, and will be submitted both electronically and in hard copy. The quarterly report submittal dates will be April 28, July 28, October 28, and January 28 each year.

TPH: 1.0 mg/L. Monitor & Report. The requirement is to take a background sample and to sample in the event of a noticeable sheen in the water. The presence of a sheen would primarily result from equipment leaks in or near the Wash. There is no need to sample on a regular basis, only in the event of equipment failure or other fuel leaks.

TDS: Monitor & Report. The shallow groundwater with naturally occurring elevated TDS levels would flow to the Wash, if it was not intercepted by the dewatering system. Therefore, the TDS standard is not applied to dewatering discharges in this area. This permit is for the interception and passage of groundwater and thus is exempted under the Colorado River Basin Salinity Control Forum's policy on groundwater interception.

Selenium: Monitor & Report. Because there is no addition of this constituent to the Wash, no sampling is required.

Lake Mead Water Surface Elevation: The lowest Lake WSEL projected by the Bureau of Reclamation to occur within a 2-year projection period (December 2009-December 2011) is approximately 1080 ft AMSL. Modeling conducted by SNWA has shown that perchlorate concentrations will not increase appreciably within Lake Mead and Lower Colorado River system as a result of these discharges. This is a result of regulating the discharge to a six-month period during the winter season. The lowest Lake WSEL used in this model is 1080 ft AMSL. Discharge of perchlorate-bearing groundwater from weir dewatering is limited by a Lake WSEL of 1080 ft AMSL.

Nitrogen, Phosphorus & Metals: The dewatering of Wash-induced shallow groundwater consists of re-routing flows back to the Wash. Because there is no addition of these constituents to the Wash, no sampling is required.

Schedule of Compliance: The Permittee shall implement and comply with the provisions of the schedule of compliance after approval by the Administrator, including in said implementation and compliance, any additions or modifications which the Administrator may make in approving the schedule of compliance:

- The Permittee shall achieve compliance with the effluent limitations upon issuance of the permit.
- Within 90 days of the permit effective date (**MM DD, 2010**), the Permittee shall submit to the Division, for review and approval, an updated **Surface Water Diversion and Dewatering Plan (SWDDP)** for the proposed shallow groundwater dewatering and surface water diversion activities. Before implementing changes to an approved SWDDP, the Permittee shall submit proposed changes to the Division for review and approval.
- Within 30 days of the permit effective date (**MM DD, 2010**), the Permittee shall submit to the Division, for review and approval, a **Sampling and Analysis Plan (SAP)** that describes the sampling, analyses, monitoring and methodology that will be used to determine when the dewatering discharges are to commence or cease (this will be based on a minimum Lake WSEL of 1080 ft AMSL and on the multi-depth perchlorate analyses [Van Dorn sampling] and multi-parameter probe monitoring of Lake Mead sampling locations). The SAP shall summarize the sampling, analyses, monitoring, and data reporting to be conducted for the Northshore Road sampling location, two sampling locations in Lake Mead, and from the Colorado River at a position immediately below

Hoover Dam (from the power generation deck). Before implementing changes to an approved SAP, the Permittee shall submit proposed changes to the Division for review and approval.

- Within 30 days of the permit effective date (**MM DD, 2010**), the Permittee shall submit to the Division a report on the evaluation of water quality impacts of dewatering discharges into the Las Vegas Wash on downstream perchlorate concentrations.
- Annually, the Permittee shall submit a letter to the Division, if requesting to discharge outside of the permitted December 1-May 31 time frame, prior to discharge outside of the permitted time frame. The letter shall contain documentation from Lake Mead sampling that indicates the lake has de-stratified/stratified.

Proposed Determination: The Division has made the tentative determination to issue the proposed permit for a period of five (5) years.

Procedures for Public Comment: The Notice of the Division's intent to issue a NPDES permit authorizing this facility to discharge into the Las Vegas Wash for a five-year period, subject to the conditions contained within the permit, is being sent to the **Las Vegas Review-Journal** for publication. The Notice is being mailed to interested persons on our mailing list. Anyone wishing to comment on the proposed permit can do so in writing for a period of thirty (30) days following the date of publication of the public notice in the newspaper. The comment period can be extended at the discretion of the Administrator. The deadline date and time by which all comments are to be submitted (via postmarked mail or time-stamped faxes, e-mails, or hand-delivered items) to the Division is **January 20, 2010 by 5:00 P.M.**

A public hearing on the proposed determination can be requested by the applicant, any affected State, any affected interstate agency, the Regional Administrator or any interested agency, person or group of persons. The request must be filed within the comment period and must indicate the interest of the person filing the request and the reasons why a hearing is warranted.

Any public hearing determined by the Administrator to be held must be conducted in the geographical area of the proposed discharge or any other area the Administrator determines to be appropriate. All public hearings must be conducted in accordance with NAC 445A.238.

The final determination of the Administrator may be appealed to the State Environmental Commission pursuant to NRS 445A.605.

Prepared by: Jeryl R. Gardner, P.E.
Date: December 2009